CLAIMS

1. A high strength molten zinc plated steel sheet characterized by comprising a steel sheet including, by wt%,

C: 0.05 to 0.40%,
Si: 0.2 to 3.0%, and
Mn: 0.1 to 2.5% and
further including at least one or two or more types of:
P: 0.001 to 0.05%,
S: 0.001 to 0.05%,
Al: 0.01% to 2%,
B: 0.0005% to less than 0.01%,
Ti: 0.01% to less than 0.1%,
V: 0.01% to less than 0.3%,
Cr: 0.01% to less than 1%,
Nb: 0.01% to less than 0.1%,
Ni: 0.01% to less than 2.0%,
Cu: 0.01% to less than 2.0%,
Co: 0.01% to less than 2.0%,
Mo: 0.01% to less than 2.0%,
with the balance comprised of Fe and unavoidable impurities, having on its surface a Zn plating layer containing Al in a concentration of 0.01 to 1 wt% and the balance of Zn and unavoidable impurities and containing inside the steel sheet within 2 μm from the interface of said steel sheet oxide particles of at least one type of oxide selected from an Al oxide, Si oxide, Mn oxide, or complex oxide comprised of at least two of Al, Si, and Mn.

2. A high strength molten zinc plated steel sheet as set forth in claim 1, characterized in that said oxide particles are comprised of at least one of silicon oxide, manganese oxide, aluminum oxide, aluminum silicate, manganese silicate, manganese aluminum oxide, and manganese aluminum silicate.

3. A high strength molten zinc plated steel sheet

as set forth in claim 1 or 2, characterized in that an average diameter of the particle size of said oxide is 0.001 to 1 μm.

4. A process of production of a high strength molten zinc plated steel sheet comprised of the ingredients described in claim 1 by a continuous molten zinc plating system, said process of production of a high strength molten zinc plated steel sheet characterized by making a heating temperature T at a recrystallization annealing step in a reducing furnace of said system 650°C to 900°C, passing the steel sheet through an atmosphere where a ratio PH_2O/PH_2 of the steam partial pressure PH_2O and hydrogen partial pressure PH_2 of the atmosphere of said reducing furnace is $1.4x10^{-10}xT^2-1.0x10^{-7}xT+5.0x10^{-4} \leq PH_2O/PH_2 \leq 6.4x10^{-7}xT^2+1.7x10^{-4}xT-0.1$, forming an internal oxide of claim 1 at a region from the surface of the steel sheet to a depth of 2.0 μm, then performing molten zinc plating treatment.

5. A process of production of a high strength molten zinc plated steel sheet as set forth in claim 4, characterized in that said oxide particles are comprised of at least one of silicon oxide, manganese oxide, aluminum oxide, aluminum silicate, manganese silicate, manganese aluminum oxide, and manganese aluminum silicate.

6. A process of production of a high strength molten zinc plated steel sheet as set forth in claim 4, characterized in that an average diameter of the particle size of said oxide is 0.001 to 1 μm.